means, the mechanical means further comprising an interacting instrumented member that interacts with the body or a part thereof of the individual, a force sensor, a force generator, at least one moveable non-compliant linkage, and a base, the force sensor further being attachedly connected by the linkage to the force generator, the linkage having at least three degrees of freedom, the computer further comprising an interactive software program, and the base supporting at least one of the above;

ii) securing a body or part thereof of the individual to the interacting instrumented member;

iii) permitting the individual to move the body or part thereof to a desired position;

iv) sensing the force required to move the body or part thereof using the force sensor;

v) producing force input data using the sensed force;

vi) transmitting the force input data from the force sensor to the computer;

vii) processing the force input data using the interactive software program;

viii) transmitting the processed data to the display means whereby the display shows a virtual environment;

ix) processing the data to produce force output data;

x) transmitting the force output data to the force generator and the linkage thereby generating a force upon the interacting instrumented member and the body or part thereof, the resulting generated force upon the body or part thereof causing the muscles and nerves in the body or part thereof to be stimulated, the stimulation resulting in regaining muscle coactivation patterns and associated joint torques patterns for the individual; thereby measuring, treating, and self-rehabilitating the individual.

2. The method of claim 1 were the body or part thereof is selected from the group consisting of a whole body, a trunk, a shoulder, a neck, a head, an arm, an elbow, a wrist, a hand, a hip, a leg, a knee, an ankle, and a foot.

3. The method of claim 1 wherein the interconnecting means provide radio communicating signals, electrical communicating signals, photonic communicating signals, or a combination thereof, between the mechanical means, the computing means, and the display means.

4. The method of claim 1 wherein the force generator is an actuator selected from the group consisting of a rotary hydraulic motor, a linear hydraulic motor, a pneumatic motor, and an electric motor.

5. The method of claim 1 wherein the method further comprises the step of attaching at least one position measurement device, the position measurement device being placed on a predetermined position selected from the group consisting of an end effector, a linkage, a force sensor, a force generator, a shoulder, a hip, a neck, and a head.

6. The method of claim 1 wherein the generated force compensates for the force due to gravity on the body or part thereof and wherein the generated force is equivalent in magnitude to between about −1 times and about +4 times the force of gravity upon the body or part thereof.

7. The method of claim 1 wherein the generated force is essentially equivalent to a force required for manipulating joint abduction torques of the individual, the joint selected from the group consisting of the shoulder and the hip.

8. The method of claim 1 wherein the interacting instrumented member further comprises a sensor selected from the group consisting of a force sensor, a position sensor, and a motion sensor.

9. The method of claim 1 wherein the interacting instrumented member further comprises an electrical stimulator, the electrical stimulator being further releasably connected to an extremity of the body or part thereof.

10. The method of claim 9 wherein the electrical stimulator stimulates movement in the extremity of the appendage, the extremity being selected from the group consisting of a finger, a thumb, a hand, an elbow, a shoulder, a wrist, a toe, a foot, an ankle, a knee, and a hip.

11. The method of claim 9 wherein the interacting instrumented member comprises a member selected from the group consisting of a splint, a limb support, a hand support, a foot support, and a force-sensing treadmill.

12. The method of claim 10 wherein the stimulated movement results in a propriosensory effect in the individual.

13. The method of claim 10 wherein the stimulated movement results in a dermal tactile sensory effect in the individual.

14. The method of claim 10 wherein the stimulated movement results in a muscle sensory effect in the individual.

15. The method of claim 1 wherein the neurological condition is selected from the group consisting of hemiparetic stroke, cerebral palsy, head trauma, and multiple sclerosis.

16. The method of claim 1 wherein the neurological condition results in a loss of independent joint control in the body or part thereof.

17. The method of claim 1 wherein the system further comprises an end effector articulatedly attached between the appendage attaching member and the force generator.

18. The method of claim 1 further comprising a step of determining the position of the appendage attaching member to generate position data and providing the position data to the computer and the display.

19. The method of claim 1 wherein the computer further comprises memory means for storing the force input data, the virtual environment, the position data, and the force output data.

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